

Application Serial No. 10/594,466  
Reply to office action of December 31, 2008

PATENT  
Docket: CU-5130

### **REMARKS/ARGUMENTS**

Reconsideration is respectfully requested.

Claims 1-6 are pending before this amendment. By the present amendment, claims 1-6 are amended. No new matter has been added.

**In the office action (page 2), the specification stands objected to for containing an embedded hyperlink and/or other form of browser-executable code.** In response, the embedded hyperlink has been removed and the specification has been amended as follows:

Detailed technology on the ATSC DTV standards and A/53 are readily available through the ATSC. [[at <http://www.atsc.org/>]]

The deletion of the hyperlink is shown using double brackets "[[ ]]" to avoid any confusion that may be caused by the inclusion of both underlining and strikethrough. The applicants respectfully submit that this overcomes the examiner's objection.

**In the office action (page 2), the specification stands objected to for not incorporating a cross-reference to related applications section.** As suggested by the examiner, the cross-reference to related applications section has been added to the specification, and the applicants respectfully request withdrawal of the aforementioned objection to the specification.

**In the office action (page 2), claims 1 and 4 stand objected under 35 U.S.C. §102(b) as being anticipated by U.S. Publication No. 2002/0194570 (Birru'70). The "et al." suffix is omitted in a reference name.**

The applicants respectfully **disagree**. In rejecting claims 1 and 4, the examiner points to Birru'70 [0008], lines 16-18; FIG. 2 as teaching each and every element of claim 1. However, the applicants submit that Birru'70 as cited by the examiner fails to teach each and every element of claims 1 and 4, as will be described below.

The portions of Birru'70 relied upon by the examiner are limited to the "Discussion of the Prior Art" section of Birru'70. The "Discussion of the Prior Art" section of Birru'70 relates to a prior art directed to a high definition television transmitter 100 and receiver 200. As described by Birru'70, the transmitter 100 and the receiver

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200 of the prior art are not capable of accommodating streams of varying priority and data rates (Birru'70 [0009], lines 5-7; FIGS. 1 and 2).

That is, the apparatus disclosed in the "Discussion of the Prior Art" in Birru'70 is not capable of transmitting and receiving "a signal including **general data and robust data**" as claimed in claim 1 of the present invention. Birru'70 clearly indicates that the subject matter described in the "Discussion of the Prior Art" section does not relate to robust data, as the object of Birru'70 is to provide a "technique for transmitting a new robust bit-streams along with the standard ATSC bit-stream" (Birru'70 [0010]).

In contrast to the subject matter described in the "Discussion of the Prior Art" section of Birru'70, the presently claimed invention, as described above, includes both "general data and robust data." Further, the presently claimed invention includes "a nonsystematic Reed Solomon (NRS) decoding means for performing NRS decoding on **the trellis-decoded robust data and correcting an error.**" Clearly the cited portions of Birru'70 cannot teach these claimed elements of the present invention, as the cited portion of Birru'70 is described as not being capable of accommodating both standard ATSC bit-streams and robust bit-streams. Accordingly, the applicants respectfully request an indication of allowable subject matter with respect to claims 1 and 4.

Further, the applicants submit that nowhere in Birru'70 teaches the presently claimed invention. Conventional systems that utilize both general and robust data, such as that depicted in FIGS. 1 and 2, receive general and robust data packets 121, 123. Parity information is added for forward error correction in an encoder 105. Subsequently, parity bytes are added to the robust data 123 in a robust data processor 113 so that a conventional digital television (DTV) receiver that does not support robust data is still capable of receiving the transmission, that is, maintaining backwards compatibility (specification page 3 line 5 to page 4, line 7; FIG. 1). Conventionally, to receive a transmission a DTV receiver carries out the above process in the reverse.

Embodiments of the present invention relate to an apparatus and method for receiving a DTV transmission with general data and robust data capable of improving robust data reception performance by using parity bytes of the robust data not only to provide backwards compatibility, but also to correct errors in the DTV transmission (specification page 9, lines 16-21). A receiver for receiving DTV signals including both

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general and robust data according to an embodiment of the present invention is shown in FIG. 2. As shown in FIG. 2, the robust data go through a nonsystematic Reed Solomon (NRS) decoder 213 after a data deinterleaver 211. The NRS decoder 213 corrects transmission error by performing the NRS decoding before removing parity bytes added to the robust data in the packet formatter 215 (specification page 12, lines 14-18). By using the parity bytes, which are added to ensure backwards compatibility for low-ranked receivers, for error correction as described above, an RS coding gain is acquired (specification page 12, lines 14-18).

The applicants submit that nowhere in Birru'70 teaches "NRS decoding on the trellis-decoded robust data and correcting an error" as claimed in claim 1, and similarly claim 4. However, to clarify the above aspects of the present invention, particularly the use of the parity bytes for error correction, claim 1, and similarly claim 4, has been amended as follows:

~~—a nonsystematic Reed Solomon (NRS) decoding unit for performing NRS decoding on the trellis-decoded robust data and for performing robust data error correction on the trellis-decoded robust data—~~

Support for the amendment to claim 1 is found at least in the specification page 11, lines 3-7 and page 12, lines 14-18, thus no new matter has been added.

Nowhere in Birru'70 teaches the presently claimed invention of claim 1. Birru'70 relates to a digital transmission system for an enhanced ATSC 8-VSB system. Birru'70 teaches transmitting a DTV signal having both a standard bit-stream and a robust bit-stream so backwards compatibility with existing receivers can be ensured (Birru'70 [0017]). According to Birru'70, parity bytes are generated "only for robust stream packets used for backward compatibility" (Birru'70 page 4, [0039]). However, nowhere in Birru'70 teaches a DTV receiver having a NRS decoding unit ~~—performing robust data error correction on trellis-decoded robust data—~~.

Accordingly, Birru'70 fails to teach each and every element of the presently claimed invention, and an indication of allowable subject matter with respect to claim 1 is respectfully requested at least for the reasons above.

Claim 4 has been amended, like claim 1 as described above, to recite:

~~—performing nonsystematic Reed Solomon (NRS) decoding on the trellis-decoded robust data and performing robust data error correction on the trellis-~~

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decoded robust data--

Support for the amendment to claim 4 is found at least in the specification page 11, lines 3-7 and page 12, lines 14-18, thus no new matter has been added.

As discussed above, nowhere in Birru'70 teaches --performing NRS decoding-- and --performing robust data error correction-- on trellis-decoded robust data. As such, an indication of allowable subject matter with regard to claim 4 is requested at least for the reasons above.

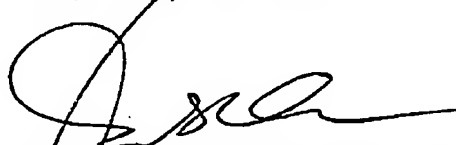
In the office action (page 4), claims 2, 3, 5, and 6 stand rejected under 35 U.S.C. §103(a) as being unpatentable over Birru'70 and further in view of U.S. Publication No. 2005/0271158 (Birru'58). The "et al." suffix is omitted in a reference name.

With regard to the dependent claims 2, 3, 5, and 6, the applicants submit that these claims should be allowable at least since they depend from one of claims 1 and 4, which are considered to be in condition for allowance for the reasons above.

For the reasons set forth above, the applicants respectfully submit that claims 1-6, now pending in this application, are in condition for allowance over the cited references. Accordingly, the applicants respectfully request reconsideration and withdrawal of the outstanding rejections and earnestly solicit an indication of allowable subject matter.

This amendment is considered to be responsive to all points raised in the office action. Should the examiner have any remaining questions or concerns, the examiner is encouraged to contact the undersigned attorney by telephone to expeditiously resolve such concerns.

Respectfully submitted,



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Dated: March 23, 2009